

WASHINGTON DEPARTMENT OF ECOLOGY
ENVIRONMENTAL ASSESSMENT PROGRAM
FRESHWATER MONITORING UNIT
STREAM DISCHARGE TECHNICAL NOTES

STATION ID: 30C070
STATION NAME: Little Klickitat River near Wahkiacus
WATER YEAR: WY2008
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Introduction

Watershed Description

The Little Klickitat River flows in south central Washington from the Simcoe Mountains and Horse Heaven Hills west across the Munson Prairie and through the Little Klickitat canyon to its confluence with the Klickitat River. The watershed drains approximately 280 square miles and includes range, agricultural, and forest lands. The river has been designated as Class A and is used primarily for irrigation, stock watering, and aquatic life habitat. Elevation ranges from about 590 ft at the gage up to 5820 ft along ridges at the northeast basin boundary. About 14% of the basin is covered by forest canopy. Annual precipitation averages 24.5 inches per year.

Gage Location

The gage is 15 miles west of Goldendale on the south side of State Highway 142. The gage is on the right bank 400 feet upstream from the Hwy 142 Bridge and 1/4 mile upstream from the confluence with the Klickitat River. The Primary Gage Index is a sloping staff gage on the right bank near the gage house and slant pipe.

Table 1.

Drainage Area (square miles)	280
Latitude (degrees, minutes, seconds)	45, 50, 32 North
Longitude (degrees, minutes, seconds)	121, 03, 29 West

Discharge

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	176
Median Annual Discharge (cfs)	133
Maximum Daily Mean Discharge (cfs)	873
Minimum Daily Mean Discharge (cfs)	28
Maximum Instantaneous Discharge (cfs)	1370
Minimum Instantaneous Discharge (cfs)	26
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	385
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	32
Number of Days Discharge is Greater Than Range of Ratings	0
Number of Days Discharge is Less Than Range of Ratings	0

Note: Statistics displayed in Table 2 may not include values in which the predicted discharge exceeds the range of ratings.

Narrative

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Error Analysis

Table 3. Error Analysis Summary.

Logger Drift Error (% of discharge)	3%
Weighted Rating Error (% of discharge)	12%
Total Potential Error (% of discharge)	15%

Rating Table(s)

Table 4. Rating Table Summary

Rating Table No.	401	5	302
Period of Ratings	10/1/07 to 2/9/08	2/9 to 5/25/2008	3/5 to 9/30/2008
Range of Ratings (cfs)	12 to 2110 cfs	122 to 2110 cfs	1.0 to 2110 cfs
No. of Defining Measurements	32	4	36
Rating Error (%)	11%	12%	12%

Rating Table No.	402		
Period of Ratings	9/25 to 9/30/2008		
Range of Ratings (cfs)	12 to 2110 cfs		
No. of Defining Measurements	32		
Rating Error (%)	11%		

Rating Table No.			
Period of Ratings			
Range of Ratings (cfs)			
No. of Defining Measurements			
Rating Error (%)			

Narrative

Tables 401 and 402 are clones of Table 4. Table 302 is a clone of Table 3. Clones of Tables 3 and 4 occur frequently and describe flow conditions for most of the period of record. Table 5 and its clones occur much less often and describe an unexplained fill condition at mid- and upper-water levels. Table 5 conditions generally occur during winter but do not seem to be directly related to channel icing.

Stage Record

Table 5. Stage Record Summary

Minimum Recorded Stage (feet)	3.28
Maximum Recorded Stage (feet)	7.42
Range of Recorded Stage (feet)	4.14
Number of Un-Reported Days	0
Number of Days Qualified as Estimates	25
Number of Days Qualified as Unreliable Estimates	0

Narrative

The minimum recorded stage occurred on 8/17/2008. The maximum recorded stage occurred on 2/10/2008. All of the 25 days qualified as estimates had high flows that were calculated using the slope conveyance model described below.

Modeled Discharge

Table 6. Model Summary

Model Type (Slope conveyance, other, none)	Slope conveyance
Range of Modeled Stage (feet)	6.00 ft to 8.80 ft
Range of Modeled Discharge (cfs)	693 cfs to 2110 cfs
Valid Period for Model	10/1/06 to 9/30/12
Model Confidence	4%

Surveys

Table 7. Survey Type and Date (station, cross section, longitudinal)

Type	Date

Activities Completed

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